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Angular distributions for electron-impact ionization of Mg GREGORY ARMSTRONG, JAMES COLGAN, Theoretical Division, Los Alamos National Laboratory, KATE NIXON, ANDREW MURRAY, Photon Science Institute, University of Manchester — We present angular distributions for electron-impact single ionization of the ground and excited states of magnesium. The time-dependent close-coupling method is used to solve the two-electron time-dependent Schrödinger equation in full dimensionality. The ionization process is treated as a two-active-electron process, where the two outgoing electrons move in the field of the frozen Mg^+ ground state. Recent experiments have provided the first measurements resulting from ionization of an excited target, via excitation from the ground state using a dye laser. The measured angular distributions for ionization of the first excited state of Mg showed interesting differences compared to the corresponding distributions for the ground state. Morever, the target may be aligned by varying the polarization of the exciting laser. In this work, we analyse the angular distributions of the outgoing electrons as the target alignment is varied, and make comparison with the case of the spherically symmetric ground state.

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